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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,263	06/24/2003	Mathilde Benveniste		7726

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EXAMINER
SOL, ANTHONY M

ART UNIT	PAPER NUMBER
2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/603,263	BENVENISTE, MATHILDE	
	Examiner	Art Unit	
	Anthony Sol	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 October 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1-20 are objected to because of the following informalities:

For claim 1, line 3, it is believed that "which" should state

--in which the--.

For claims 1, line 7, "Said" should be --said--. A claim can contain only one sentence.

For claims 2-20, line 2, the first word should not be capitalized. For example, claim 2, line 2, the word "Requiring" should be --requiring--. Claims 3-30 should be similarly amended.

For claims 11-13, a period (.) is missing at the end of the claim.

Appropriate corrections are required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by

Pub. No. US 2003/0193925 A1 ("Mujtaba").

Regarding claim 1,

Mujtaba shows in fig. 8 an access point 82-1 and a plurality of stations 84 illuminated by multiple beams 86 of an antenna system emanating from said access point, which antenna system does not enable simultaneous communication on the same channel in opposite directions between said access point and any two stations covered by different beams (para. 26 and para. 29, *Fig. 10 illustrates a TDD time-slotted CDMA technique… is the same as the CDD time-slotted CDMA technique described in conjunction with Figs. 8 and 9, except that … a time division … is used; para. 10, lines 14-18, A TDD time-slotted CDMA system in accordance with the invention may also make use of the above-noted electronically-steered* ***beams****, each having width sufficient to provide simultaneous coverage for at least* ***n subscriber units*** *at a given time*).

Mujtaba discloses TDD in a way that reduces channel capture (para. 25, line 17, *uplink and downlink portions of the system are separated*).

Mujtaba discloses said stations transmit according to a medium access protocol that allows the initiation of transmission only when the channel is idle (para. 25, line 16, *time division duplex (TDD)*).

Mujtaba further discloses requiring all stations engaged in uplink transmission to release the channel at the same time, causing the channel to become idle at that time and thus preventing capture of the channel by uplink transmissions (see Fig. 10, para.

29, lines 5-7, *a time division… is used to separate the uplink and downlink portions of the system*).

4. Regarding claim 2,

Mujtaba shows in Fig. 10 the duplexing used in the TDD time-slotted CDMA technique where one or more of the time slots are assigned to the downlink, while others are assigned to the uplink (para. 29).

5. Regarding claim 7,

Mujtaba discloses that the TDD time-slotted system may also make use of the electronically-steered beams, each having a width sufficient to provide simultaneous coverage for at least n subscriber units at a given time (para. 10, lines 14-18).

Mujtaba also discloses that the technique is "time-slotted" in that beams are steerable, such that beams can be activated in different time slots (para. 26, lines 28-30). Thus, it can be said that the beams can also be activated in same time slots, which would indicate that reservations (time-slots) of all terminating simultaneously.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 3, 4, 6, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mujtaba in view of U.S. Patent No. 6,088,337 ("Eastmond").

Regarding claim 3,

Mujtaba does not disclose determining whether the channel is idle through carrier sensing.

Eastmond discloses accessing the system on specially marked contention blocks using a CSMA-like protocol where the contention access can be modeled as a slotted, aloha system with carrier sensing (col. 28, line 36 – col. 29, line 23).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the TDD method of Mujtaba to use carrier sensing as taught by Eastmond. One skilled in the art would have been motivated to make the combination since the control connection defines a special control connection extended header to allow the origination of an asynchronous transfer and since all contention accesses are assumed to be on the control connection and use the extended header, where the contention access can be modeled as a slotted aloha system with carrier sensing (Eastmond, col. 27, lines 36-45, col. 29, lines 11-12).

8. Regarding claim 4,

Mujtaba does not disclose determining whether the channel is idle through timers maintained at the non-transmitting stations and set to the duration value indicated upon reservation of the channel.

Eastmond discloses several protocol timers that regulate the asynchronous transfer process including TP203 that specifies the maximum time between assigned blocks for data segments (col. 32, lines 25-33)

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the TDD method of Mujtaba to use timers as taught by Eastmond. One skilled in the art would have been motivated to make the combination so that if any of these protocol parameters are exceeded the peripheral unit must abort the transfer and either retry or drop the packet, so that other peripheral will have an opportunity to get access (Eastmond, col. 32, lines 32-34).

9. Regarding claim 6,

Mujtaba does not disclose that the access point transmitting dummy frames on certain beams so as to cause transmission on all beams to terminate simultaneously.

Eastmond discloses that the final data segment will be padded with fill bits to form one complete block (col. 31, lines 24-40).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the TDD method of Mujtaba to use fill bits as taught by Eastmond. One skilled in the art would have been motivated to make the combination since each asynchronous connection is maintained for the duration a device is registered (Eastmond, col. 31, lines 27-29).

10. Regarding claims 15 and 16,

Mujtaba does not disclose timing acknowledgement of successful receipt by the access point of frames transmitted uplink to occur before the access point relinquishes the channel for uplink transmission, thus enabling a station whose transmission remains unacknowledged by the time the station may access the channel again to retransmit said frame at that time.

Eastmond discloses a transmit and wait (for the acknowledgement) scheme. Eastmond further discloses (col. 2, lines 36-37).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the TDD method of Mujtaba to use acknowledgment packets as taught by Eastmond. One skilled in the art would have been motivated to make the combination so that the peripheral unit can retry to transmit the packet before the timer runs out and other peripheral units can access the channel (Eastmond, col. 32, lines 32-34).

11. Claims 5, 10, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mujtaba in view of U.S. Patent No. 5,864,544 ("Serinken").

Regarding claims 5 and 10,

Mujtaba does not explicitly disclose synchronizing the clocks of the stations and requiring the times at which stations engaged in uplink transmissions to release the channel to conform to a previously-designated schedule.

Serinken discloses that a timing signal is obtained from a source which is available to all terminals. Serinken further discloses that this signal has a particular

characteristic which informs the terminals in which transmitting direction the channel is to be placed, transmitting or receiving mode (col. 2, lines 28-49).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the TDD method of Mujtaba to provide a synchronization signal as taught by Serinken. One skilled in the art would have been motivated to make the combination so that the synchronization signal becomes not only a synchronization signal but also a control signal (Serinken, col. 2, lines 48-49).

12. Regarding claims 11 and 12,

Mujtaba does not explicitly disclose achieving synchronization of the clocks of all stations within the same cell by requiring some or all stations to extract time information from signals generally available outside the network

Serinken discloses a timing signal that is obtained from an earth satellite such as the global positioning system (GPS) (col. 2, lines 31-36)

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the TDD method of Mujtaba to provide synchronization signal from an outside source as taught by Serinken. One skilled in the art would have been motivated to make the combination to allow maximum duplex channel capacity to be used for the transmission of signal payload in both channel directions (Serinken, col. 2, lines 36-41).

13. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mujtaba in view of Serinken, and further in view of U.S. Patent No. 6,549,531 B1 ("Charas").

Regarding claim 8,

Mujtaba in combination with Serinken do not disclose having several release schedules specified and distributed previously, and one chosen based on time of day.

Charas discloses a time slot sharing scheme enabled to adjust, including based on time-of-day (col. 2, lines 18-23).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the TDD method of Mujtaba and Serinken to have time slot scheme be balanced or evened-out based on time-of-day, for example, as taught by Charas. One skilled in the art would have been motivated to make the combination to meet the net nominal system capacity (Charas, col. 2, lines 18-23).

14. Regarding claim 9,

Mujtaba in combination with Serinken do not disclose having several release schedules specified and distributed previously, and one chosen based on network conditions.

Charas discloses a time slot sharing scheme enabled to adjust in the allocation of available channel capacity (col. 2, lines 18-23).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the TDD method of Mujtaba and Serinken to

have time slot scheme be balanced or evened-out to adjust based on available channel capacity as taught by Charas. One skilled in the art would have been motivated to make the combination to meet the net nominal system capacity (Charas, col. 2, lines 18-23).

15. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mujtaba in view of Serinken, and further in view of Pub. No. US 2003/0001880 A1 ("Holtz").

Regarding claims 13 and 14,

Mujtaba in combination with Serinken do not disclose achieving synchronization of the clocks of all stations within the same cell by extracting time readings from radio signals intended for national time synchronization.

Holtz discloses a wireless local area network (para. 60) which utilizes Network Time Protocol (NTP)(para. 93).

One skilled in the art would have been motivated to make the combination to allow maximum duplex channel capacity to be used for the transmission of signal payload in both channel directions (Serinken, col. 2, lines 36-41).

16. Claim 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mujtaba in view of Serinken, and further in view of Admitted Prior Art ("APA").

Regarding claim 17,

Mujtaba does not disclose limiting transmissions that occur while the access point has control of the channel to frames that do not require acknowledgement and to frames directed to a single station per beam, thus permitting acknowledgement by such station to be sent without contention.

Eastmond discloses accessing the system on specially marked contention blocks using a CSMA-like protocol where the contention access can be modeled as a slotted, aloha system with carrier sensing (col. 28, line 36 – col. 29, line 23). CSMA allows a station to transmit without contention.

Admitted Prior Art discloses that according to the 802.11 standard, a station has the option to forego acknowledgements (Applicant's specification, p. 12, line 17).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the TDD method of Mujtaba to permit acknowledgment without contention as taught by Eastmond and to forego acknowledgments as taught by APA. One skilled in the art would have been motivated to make the combination since CSMA does not have contention access (Eastmond, col. 27, lines 36-45, col. 29, lines 11-12) and since certain data, the related acknowledgment is of little use, like voice data, as is well known in the art.

17. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mujtaba in view of Eastmond, and further in view of Admitted Prior Art ("APA").

Regarding claims 18-20,

Mujtaba in combination with Eastmond does not disclose using a compound acknowledgement for all frames transmitted uplink by a single station and during the time interval between two consecutive designated channel release times, thus reducing the channel time used for acknowledgements.

Admitted Prior Art discloses that an acknowledgement policy being proposed for the 802.11e standard, enables the sending station to relax the requirement for each frame, but upon request, receive an acknowledgement for receipt of multiple frames (Applicant's specification, p. 12, lines 18-20).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention was made to modify the TDD method of Mujtaba and Eastmond to permit acknowledgment without contention as taught by Eastmond and to forego acknowledgments as taught by APA. One skilled in the art would have been motivated to make the combination to comply with the proposed standard.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Anderson (US6112080) teaches wireless communication system utilizing "polling loop."
- Crilly, Jr. (US2002/0158801A1) teaches wireless packet switched communication systems and networks using adaptively steered antenna arrays.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Sol whose telephone number is (571) 272-5949. The examiner can normally be reached on M-F 7:30am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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AMS

3/6/2007